Quarterly Activity and Monitoring Report

January 1 – March 31, 2009

In compliance with the "Management Agency Agreement between the Central Valley Regional Water Quality Control Board and the United States Bureau of Reclamation" executed on December 22, 2008

May 15, 2009

Abbreviations and Acronyms

Action Plan	Actions to Address the Salinity and Boron TMDL Issues for the Lower San Joaquin River
AF	acre-foot or acre-feet
Authority	San Luis & Delta-Mendota Water Authority
Basin Plan	Water Quality Control Plan for the Sacramento and San Joaquin River Basins, 4th Edition
BMP	Best Management Practices
CALFED	CALFED Bay-Delta Program
CDEC	California Data Exchange Center
CDFG	California Department of Fish and Game
cfs	cubic feet per second
Corps	U.S. Army Corps of Engineers
CVO	Central Valley Operations
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CVRWQCB	Central Valley Regional Water Quality Control Board
CV-SALTS	Central Valley Salinity Alternatives for Long Term Sustainability
DCRT	Data Collection and Review Team
DMC	Delta-Mendota Canal
DWR	California Department of Water Resources
EC	electrical conductivity
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
Exchange Contractors	San Joaquin River Exchange Contractors Water Authority
GBP	Grassland Bypass Project
GDA	Grassland Drainage Area
GRCD	Grassland Resource Conservation District
GUI	graphical user interface
ID	irrigation district
Interior	U.S. Department of the Interior
IPO	Interim Plan of Operations
MAA	Management Agency Agreement
µS/cm	micro Siemens per centimeter
µg/L	microgram(s) per liter
mg/L	milligram(s) per liter

NPDES	National Pollutant Discharge Elimination System
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
Reclamation	Bureau of Reclamation
RTMP	Real Time Management Program
Secretary	Secretary of the Interior
Service	U.S. Fish and Wildlife Service
SJR	San Joaquin River
SJRIP	San Joaquin River Improvement Project
SJRWQMG	San Joaquin River Water Quality Management Group
SLDMWA	San Luis and Delta Mendota Water Authority
SWP	State Water Project
SWRCB	State Water Resources Control Board
TAF	thousand acre-feet
TDS	total dissolved solids
TMDL	total maximum daily load
TPRT	Technical Policy and Review Team
VAMP	Vernalis Adaptive Management Plan
WAP	Water Acquisition Program
WCFSP	Water Conservation Field Service Program
WDR	Waste Discharge Requirement
WQO	water quality objective
WRDP	Westside Regional Drainage Plan
YSI	Yellow Spring Instrument

Purpose

The Central Valley Regional Water Quality Control Board's Salt and Boron Total Maximum Daily Load (TMDL) was approved and placed into effect on July 28, 2006. In response to the Salinity and Boron TMDL, the United States Bureau of Reclamation (Reclamation) developed a salinity control plan, *Actions to Address the Salinity and Boron TMDL Issues for the Lower San Joaquin River* (Action Plan) and entered into a Management Agency Agreement (MAA) with the Central Valley Regional Water Quality Control Board on December 22, 2009. The MAA describe the actions Reclamation will take to meet the obligations allocated to it by the Salinity and Boron TMDL for the lower San Joaquin River. The MAA states:

> Reclamation will submit quarterly reports to the Regional Water Board by 45 days after the end of the calendar quarter. The quarterly reports will include a summary of activities conducted by Reclamation during the quarter in conjunction with each element included in their Action Plan, including activities related to developing a Real Time Management Program. In addition Reclamation will include data collected relevant to DMC load evaluation.

The "Quarterly Activity and Monitoring Report" summarizes the activities conducted by Reclamation in conjunction with each element outlined in its salinity control plan for the lower San Joaquin River. The Action Plan describes Reclamation's past, current and planned practices and procedures to mitigate and manage adverse impacts of salt and boron imported into the San Joaquin basin via the Delta Mendota Canal (DMC) in order to help achieve compliance with the objectives contained in the Regional Water Board's *Water Quality Control Plan for the Sacramento River and the San Joaquin River Basins – 4th Edition* (Basin Plan).

Organization of Quarterly Report

The quarterly report will provide a synopsis of the various activities associated with each element identified in the Action Plan. The Action Plan describes all of the actions contemplated by the MAA. Within the Action Plan, actions are divided into three major categories: Flow, Salt Load Reduction, and Mitigation. For each action a brief description and list of activities are identified. The quarterly report will include calculations of salt loads based on DMC deliveries and calculations of assimilative capacity provide through dilution flows. The calculation methods used in this report are provisional and some elements in this report (such as the Westside Regional Drainage Plan) do not include estimations of benefits at this time. Reclamation is in the process of developing the *Compliance Monitoring and Evaluation Plan* which will outline the criteria and methodology for determining DMC loads and credits.

A. Flow Actions

Reclamation has agreed to provide mitigation and dilution flows to meet the Vernalis salinity and boron objectives. Historically, Reclamation has provided dilution flows from the New Melones Project and through purchases for the Vernalis Adaptive Management Plan. Flow actions include: dilution flows from New Melones and water acquisitions.

1. New Melones flows

Brief Description: In the Flood Control Act of October, 1962, the Congress reauthorized and expanded the New Melones project (P.L. 87-874) to a multipurpose unit to be built by the U.S. Army Corps of Engineers (Corps) and operated by the Secretary of Interior as part of the Central

Valley Project (CVP), thus creating the New Melones Unit. The multipurpose objectives of the unit include flood control, irrigation, municipal and industrial water supply, power generation, fishery enhancement, water quality improvement, and recreation. New Melones Reservoir is currently operating under an "Interim Operating Agreement." This agreement was completed in 1996 with significant input from stakeholder interests.

Activity:

- *Working to develop a process to efficiently obtain the operations data on a routine basis for future reports.*

Month	*Volume of Releases (TAF)[1] from Goodwin*	*Monthly Average EC (uS/cm)[2]*	*Assimilative Capacity (tons/month)*
Jan-09	11.00	117.12	-8054
Feb-09	14.50	115.53	-10636
Mar-09	18.10	116.68	-13259
Quarterly Total	43.60		-31948

For the quantification of dilution flow allocations, the Basin Plan prescribes the following equation [3] to calculate assimilative capacity. The TMDL specifies that entities providing dilution flows obtain an allocation equal to the salt load assimilative capacity provided by this flow, calculated as follows:

Adil = Qdil*(Cdil--WQO)*0.8293

Where:

Adil = dilution flow allocation in tons of salt per month
Qdil = dilution flow volume in thousand acre-feet per month
Cdil = dilution flow electrical conductivity in µS/cm
WQO = salinity water quality objective for the LSJR at Airport Way Bridge near Vernalis in µS/cm (1000 from Sep 1 to Mar 31, 700 from Apr 1 to Aug 31)

The negative values under "Assimilative Capacity" equates to the amount of additional load the river can handle without violating the water quality objective.

2. Water Acquisitions

Brief Description: The Central Valley Project Improvement Act (CVPIA) signed into law on October 30, 1992, modified priorities for managing water resources of the Central Valley

[1] Flow data obtained from CVO Office; non-consumptive releases from Goodwin Dam
[2] Water quality data obtained from California date Exchange Center (CDEC); Ripon (RPN) monitoring station.
[3] Water Quality Control Plan for the Sacramento and San Joaquin River Basins, 4th Edition; Page IV-32.07, Table IV-4.4 Summary of Allocations and Credits; however the units cited in the Basin Plan (thousand tons/month for Adil) is incorrect. The correct unit for Adil is tons/month.

Project. CVPIA altered the management of the Central Valley Project to make fish and wildlife protection, restoration, and enhancement as project purposes having equal priority with agriculture, municipal and industrial, and power uses. To meet water acquisition needs under CVPIA, the U.S. Department of the Interior (Interior) has developed a Water Acquisition Program (WAP), a joint effort by the Reclamation and the U.S. Fish and Wildlife Service (Service). The program's purpose is to acquire water supplies to meet the habitat restoration and enhancement goals of the CVPIA and to improve the Interior's ability to meet regulatory water quality requirements.

Activity:

- *Working to develop a process to efficiently obtain the water acquisitions information on a routine basis for future reports.*

- *Reclamation did not acquire any water that provided assimilative capacity to the river this quarter.*

B. Salt Load Reduction Actions

Reclamation is under a court order to provide drainage to its San Luis Unit, on the Westside of the lower San Joaquin River. As part of its efforts to provide drainage, Reclamation has historically supported the Westside Regional Drainage Plan (WRDP) through monetary grants and in-kind services. Reclamation recognizes there is still much to be done to implement the Westside Regional Drainage Plan. Salt Load Reduction Actions include the Grasslands Bypass Project, the Westside Regional Drainage Plan, and conservation programs (Water Conservation Field Services Program, Water 2025 Grants Program, and the CALFED Water Use Efficiency Program).

1. Grasslands Bypass Project (GBP)

Brief Description: The Grassland Bypass Project is a multi-agency stakeholder project based upon an agreement between the Reclamation and the Authority to use a 28-mile segment of the San Luis Drain. The San Luis Drain is used to convey agricultural subsurface drainage water from the Grassland Discharge Area (GDA) to Mud Slough, a tributary of the San Joaquin River. The purpose of the project is to separate unusable agricultural drainage water discharged from the GDA from wetland water supply conveyance channels, facilitate drainage management that maintains the viability of agriculture in the GDA and promotes continuous improvement in water quality in the San Joaquin River.

Activity:

- *Reclamation continues to support portions of the sediment and water monitoring effort necessary for the project. These include weekly, quarterly and annual monitoring of locations in the San Luis and Kesterson National Wildlife Refuges, Mud Slough, Salt Slough, DMC, Mendota Pool, and the San Luis Drain. Activities include collection of samples, incorporation of samples into a prescribed QA/QC program, fund analytical analyses, validation of analytical data, periodic update of the Quality Assurance Project Plan, and routine QA audits of all analytical laboratories performing work on the project.*

- *Reclamation is actively involved with project partners to pursue a third use agreement to fully develop the project. The administrative draft EIS/EIR for the continuation of the Grassland Bypass Project went out for public review in December 2008. Reclamation is working with its consultant to respond to public comments and drafting a biological assessment to address ESA issues. Reclamation anticipates a biological opinion from the Service by Fall of this year and execution of a ROD by the end of 2009. Concurrently, the Regional Board is working to amend the schedule for meeting the selenium objectives in Mud Slough (North) and the San Joaquin River.*

- *Reclamation continues to be a member of the Technical Policy Review Team (TPRT) and the Data Collection and Reporting Team (DCRT). The DCRT produces the Annual Report and help revise the Quality Assurance Project Plan. The TPRT is responsible for tracking the monitoring program carried out by the various agencies.*

2. Westside Regional Drainage Plan (WRDP)

Brief Description: The Westside Regional Drainage Plan is a local stakeholder program developed by integrating all consistent elements of drainage management developed by government and local agencies and private partnerships. The original efforts of the WRDP focused on reducing selenium discharges to the San Joaquin River. Success of the original effort prompted a proposal to expand the WRDP to go beyond regulatory requirements and eliminate selenium, boron, and salt discharges to the San Joaquin River, while maintaining productivity of agriculture lands in the solution area and enhancing water supplies for the region.

While Reclamation lacks control of many of the resources needed to be an active participant in the WRDP, Reclamation provides annual funding to support and sustain the WRDP.

Activity:

- *Reclamation is working on a contract to continue support to fully develop the WRDP. If successful, the funds provided from Reclamation combined with state Proposition 50 funding and local cost sharing, will continue the development of more than 6,000 acres of reuse lands.*

3. Conservation Efforts

Brief Description: The water use efficiency program element includes several grant programs which fund actions to assure efficient use of existing and any new water supplies. Efficiency actions can alter the pattern of water diversions and reduce the magnitude of diversions, providing additional benefits. Efficiency actions can also result in reduced discharge of effluent or drainage and improved water quality. Although Reclamation is unable to quantify the benefits of the various funded projects as related to salinity reduction, the following information is provided to depict the agency's water conservation efforts in the basin. Through Water 2025, CALFED, and the WCFSP, Reclamation has awarded 36 projects in the San Joaquin Valley that

require performance measures since 2006. As information is collected from these projects quantifiable benefits may be determined in the future.

Activity:

- *Reclamation recently concluded the solicitation process for the WCFSP and Water for America Initiative Challenge Grants. These grants are in the final approval process and the anticipated award date is July of 2009.*

  Under the 2009 WCFSP, three proposals from water districts within the San Joaquin Basin are under review for grant considerations. These projects involved flow control structures, SCADA, and metering. If awarded, these grants would provide the districts with $25,000 in funds to implement their respective project. Additional information will be provided post award.

  The Water for America Initiative has identified nine Challenge Grant projects in the San Joaquin Valley totaling $3,000,000. Additional information regarding the projects will be provided post award.

- *Currently, Reclamation is soliciting proposals for the CALFED Water Use Efficiency Grant Program where $5,000,000 is available for award. Information is posted on Grants.gov with the solicitation period closing on June 8, 2009. This grant is a 50% cost-shared program, not to exceed $1,000,000 in federal funds. Projects must provide benefits to the Bay-Delta. Awards are anticipated to be made in August of 2009.*

- *Under the American Recovery and Reinvestment Act (ARRA), Reclamation is soliciting an additional $40 million in Challenge Grants for water use efficiency projects. These grants are competed Reclamation-wide, and the solicitation closes on May 22, 2009. Proposals will be reviewed by a technical expert panel and awards will be made based on merit by August 2009. The program has a 50% applicant cost-share requirement, and awards will range from $1,000,000 to $5,000,000. Additional information will be provided post award identifying activities in the San Joaquin Basin.*

C. Mitigation Actions

Reclamation's Action Plan identifies two mitigation actions to reduce salinity loads: a real time management program to maximize the removal of salt using assimilative capacity in the San Joaquin River, and a wetlands BMP plan to research and potentially develop practices to reduce salinity loading from managed wetlands. Reclamation has actively supported the development of a real time monitoring and forecasting program in the River and in managed wetlands.

1. Real Time Management Program – Development of Stakeholder-Driven Program

Brief Description: The Real Time Management Program is described in the TMDL as a stakeholder driven effort to use "real-time" water quality and flow monitoring data to support water management operations in order to maximize the use of assimilative capacity in the San

Joaquin River. The Regional Board describes this assimilative capacity as up to 85% of the load determined by Vernalis salinity objective. Reclamation has contracted with a facilitation firm to support the development of a stakeholder-driven program.

Activity:

- *Reclamation continues to work with its consultants to facilitate stakeholder involvement in developing a Real Time Management Program (RTMP).*

- *Reclamation directed its contractor to develop a project website for file access and to keep stakeholders informed of the various meetings and activties.*

- *A stakeholder survey was completed prior to the first workshop on January 8th, 2009. The summary survey report is posted on the project website, http://www.sanjoaquinriverrtmp.com/document*

- *The first stakeholder workshop was held on January 8th, 2009 at Modesto. The workshop resulted in the formation of four smaller working groups: Stakeholder Coordination; Technical and Data Needs; Regulatory and Policy: and Resources and Infrastructure.*

- *Reclamation is exploring options to perform additional technical work identified during the first workshop.*

2. Real Time Management Program – Technical Support

Brief Description: A successful RTMP will require a real time monitoring network and a model capable of reasonably accurate forecasting of assimilative capacity. Reclamation is committed to participation in and support of the development of these tools. Reclamation staff has valuable experience in both of these areas. The technical support of this program will follow the stakeholder process.

Activity:

- *Reclamation is working with its consultant to develop a graphical user interface (GUI) and water quality data management tool. This work should be available for presentation during the second workshop.*

- *Reclamation has developed a database model that is gaining acceptance across the region. The database model could serve as a model for the RTMP. A presentation is being for stakeholders at the second workshop.*

- *Routine conference calls are taking place amongst the various work groups but greater stakeholder participation is needed. Discussions during these meetings intersect many other programs (upstream TMDL, CV SALTS, ILRP, SJR Restoration, etc.) and there is a need for great coordination amongst agency members and stakeholders.*

3. Wetlands BMP Plan

Brief Description: The Service, CDFG, and the Grassland Resource Conservation District (GRCD) in coordination with Reclamation are developing BMP plans to reduce the impact of discharges from managed wetlands into the San Joaquin River. Currently, the developed draft BMP plan is awaiting the Service's approval.

Activity:

- *Reclamation is sponsoring a project entitled "Water Quality Monitoring in the Grassland Resource Conservation District". This 3-year project will retrofit 6 existing monitoring stations and integrate these stations with existing stations as part of a SWRCB-sponsored pilot project on wetland real-time salinity management. The project will install 28 additional stations in the Grassland Water District, California Department of Fish and Game, and US Fish and Wildlife Service lands. All stations will become part of a sensor network that is currently supported by YSI EcoNet. Research supported by Reclamation as part of this project will investigate data management systems and develop software that will integrate existing sensor networks into a common decision support system. The decision support system will ultimately be used to help schedule wetland salt loading to the San Joaquin River.*

- *Reclamation is developing a cooperative agreement with Berkeley National Laboratory to oversee the development of the pilot real-time water quality management program and the decision support system described above. This program will continue some of the research work initiated under the SWRCB-sponsored grant which will address the feasibility and long term impacts of delayed seasonal wetland drawdown.*

- *Reclamation is collaborating with the Service, CDFG, and local wetlands managers to finalizing the BMP Plan.*

- *Reclamation is working on a contract to purchase additional monitoring equipment for a pilot real time monitoring network on a managed wetland in the San Joaquin Basin.*

- *Reclamation is sponsoring several groundwater conjunctive use investigations in the western San Joaquin Basin that have direct relevance to salinity management. The first project will drill and complete two production wells in the Volta Wildlife Management Area to supplement current wetland water supply. These wells will be continuously monitored for electrical conductivity and drawdown to assess long term impacts on refuge water quality and local groundwater resources. The second is investigating land subsidence impacts of groundwater conjunctive use in the Grasslands Basin. Substitution of groundwater supply for surface water can increase drainage salt load exports from the Basin – however increased pumping increases the risk of land subsidence which can damage existing surface water conveyance facilities. Groundwater management will be part of any long term real-time water quality management strategy.*

4. Involvement in CV-SALTS program

Brief Description: The Central Valley Water Board and State Water Board have initiated a comprehensive effort to address salinity problems in California's Central Valley and adopt long-term solutions that will lead to enhanced water quality and economic sustainability. The Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) is a collaborative basin planning effort aimed at developing and implementing a comprehensive salinity management program. The goal of CV-SALTS is to maintain a healthy environment and a good quality of life for all Californians by protecting the state's most essential and vulnerable resource: water.

Activity:

- *Reclamation is involved in the various sub-committees in the program – Leader Group, Technical Advisory Committee, Economics, Education and Outreach.*

- *Reclamation provided staff resources to assist the Technical Advisory Committee in developing the work plan for the technical work group.*

D. DMC Load Evaluation

The calculated DMC load is determining by the volume of deliveries made to the Northwest and Grassland subareas and the corresponding TDS. The summary data tables below are taken from the monthly report titled *Delta-Mendota Canal Water Quality Monitoring Program.*

	Grassland						Northwest					Total
	San Joaquin River and Mendota Pool Deliveries from CVP, load in tons	Delta- Mendota Canal Deliveries from CVP, load in tons	San Luis and Cross Valley Canal Deliveries from CVP, load in tons	Total Flow, TAF	Background Allowance Load, tons	Excess Load, tons	San Joaquin River and Mendota Pool Deliveries from CVP, load in tons	Delta- Mendota Canal Deliveries from CVP, load in tons	Total Flow, TAF	Background Allowance Load, tons	Excess Load, tons	Total Excess Load from CVP Deliveries, tons
Jan-09	4,758	3,230	828	11.936	843	7,973	14	245	0.360	25	233	8,206
Feb-09	20,615	1,880	2,225	32.969	2,330	22,390	1,186	266	1.933	137	1,315	23,705
Mar-09	28,308	8,719	3,548	68.217	4,821	35,754	2,516	770	5.541	392	2.894	38,648
Qtr Total	53,681	13,828	6,601	113.122	7,994	66,117	3,715	1,281	7.834	554	4,443	70,559

E. Reporting Requirements

In the MAA, Reclamation agreed to provide quarterly reports to the Regional Board. Reclamation will consult with the Regional Board before proposing any changes to the sample report format. Quarterly reports are due 45 days after the end of the calendar quarter:

End of calendar quarter	Due date of Quarterly report
Dec 31, 2008	Feb 15, 2009
March 31, 2009	May 15, 2009
June 30, 2009	August 15, 2009
September 30, 2009	November 15, 2010
December 31, 2009	February 15, 2010
March 31, 2010	May 15, 2010
June 30, 2010	August 15, 2010
September 30, 2010	November 15, 2010
December 31, 2010	February 15, 2011

F. Funding Reporting

Reclamation agreed in the MAA to seek additional funding, including grant funding, to support salinity control efforts. In its quarterly reports, Reclamation will report on its efforts to support the securing of additional funding.

Activity:

- *A funding request was submitted for the 2010 budget for WSRDP.*
- *A funding request was submitted for the 2011 budget for WSRDP.*
- *A funding request was submitted for the 2011 budget for administrative coordination and activities related to the RTMP.*